

REMARKS

Responsive to the Office action mailed September 26, 2006, applicant request consideration of the following remarks and reconsideration of the rejections set forth in said office action. The Office Action indicated on page 2 that the action was final by checking box 2a. However, in that this was the first substantive action in this case and there was no other indication in the Office Action that the action was final Applicants have treated the action as non-final.

Claims 1-22 were rejected under 35 USC 103(a) as being unpatentable over Arretz US 4,927,972 (hereinafter Arretz '972) in view of Farlow et al. US 2,402,614 (hereinafter Farlow et al. '614). Applicants respectfully submit that neither Arretz'972 nor Farlow et al.'614 singly or in combination render obvious the present invention.

The present invention is directed toward the discovery of a new process for preparing a mercaptan from a thioether and hydrogen sulphide. The process is carried out in the presence of hydrogen and a catalyst comprising a strong acid and at least one metal belonging to group VII of the Periodic Table. The combination of the hydrogen with a strong acid and at least one metal belonging to group VIII of the Periodic Table provides for stabilization of the activity of the catalyst at a high level over time and at a relatively low temperature. This catalyst activity is surprising in a sulphurizing medium, which would be expected to poison the active sites of catalysts.

Arretz '972 discloses a process for manufacturing mercaptans from specific thioethers. The specific thioethers disclosed by Arretz '972 are those in which one of the carbon atoms adjacent to the sulfur atom is a tertiary carbon, and the other carbon is either a primary or a secondary carbon atom. The specific thioethers are reacted with H<sub>2</sub>S in the presence of a catalyst chosen from aluminosilicates or highly acid ion-exchange resins. Thus, Arretz '972 discloses a sulfohydrolysis type of chemical reaction. In Arretz '972 there is no disclosure, either express or

implied of the use of hydrogen and a strong acid and at least one metal belonging to group VIII of the Periodic Table, which are required in the present process. It is submitted that there is no teaching or motivation in Arretz '972 to include hydrogen and replace the catalysts disclosed therein with a strong acid and at least one metal belonging to group VIII of the Periodic Table.

Farlow et al. '614 discloses to a process for manufacturing mercaptans from thioethers and H<sub>2</sub>, a hydrogenation reaction. The hydrogenation catalyst disclosed by Farlow et al. '614 is a metal sulfide. Farlow et al. '614 fails to disclose, either expressly or by implication, the use of H<sub>2</sub>S or a strong acid and at least one metal from Group VIII. Further, Farlow et al. '614 in Example II, at column 3, lines 6-8, indicates that the presence of H<sub>2</sub>S must be avoided. It is submitted that there is no teaching or motivation in Farlow et al. '614 to include hydrogen sulphide and replace the catalysts disclosed therein with a Group VIII metal catalyst. In fact, Farlow et al. '614 teaches the removal of hydrogen sulphide not its use, indicating it is undesirable in the reaction disclosed therein.

It is submitted that there is no motivation or teaching to combine Arretz '972 and Farlow et al. '614 because: the chemical reactions are different, sulfohydrolysis for Arretz '972 and hydrogenation for Farlow et al. '614; the teaching of Farlow et al. '614 in Example II showing that H<sub>2</sub>S should be removed from the reaction. Even were it obvious to combine Arretz '972 and Farlow et al. '614, which applicants contend is not the case, the present invention would not be disclosed because: one of the reactants are different in both Arretz '972 and in Farlow et al. '614: H<sub>2</sub>S in Arretz '972 and H<sub>2</sub> in Farlow et al. '614. While H<sub>2</sub> is present in Arretz '972, it is not a reactant, it does not participate in the chemical reaction.

In view of the foregoing remarks, applicant respectfully submits that claims 1-22 of the present application are in condition for allowance and prompt favorable action is solicited.

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Respectfully submitted,

Steven D. Boyd  
Steven D. Boyd  
Attorney of Record  
Reg. No. 31,000  
(215) 419-5270  
Customer Number 31684